

CLAIMS

What is claimed is:

1. An isolated ABCB9 transporter polypeptide selected from the group consisting of
 - (a) an isolated ABCB9 transporter polypeptide encoded by a nucleic acid molecule comprising a nucleotide sequence that is at least 92% identical to a nucleotide sequence set forth in SEQ ID NO: 1 or 3, wherein the polypeptide retains an ABCB9 transporter activity;
 - (b) an isolated ABCB9 transporter polypeptide comprising an amino acid sequence at least 96% identical to the amino acid sequence set forth in SEQ ID NO: 2, wherein the ABCB9 polypeptide retains an ABCB9 transporter activity; and
 - (c) an isolated ABCB9 transporter polypeptide comprising the amino acid sequence set forth in SEQ ID NO: 2.
2. The ABCB9 transporter polypeptide according to claim 1 comprising a heterologous amino acid sequence.
3. The ABCB9 transporter polypeptide according to claim 1 wherein the ABCB9 transporter activity is the ability to transport β -amyloid across a membrane.
4. An isolated antibody or fragment thereof that specifically binds to an ABCB9 polypeptide comprising the amino acid sequence set forth in SEQ ID NO: 2.

5. An isolated antibody or fragment thereof that specifically binds to a ABCB9 transporter polypeptide comprising an amino acid sequence at least 96% identical to the amino acid sequence set forth in SEQ ID NO:2, wherein the ABCB9 transporter polypeptide retains an ABCB9 transporter activity.

6. An isolated antibody or fragment thereof that specifically binds to a ABCB9 transporter polypeptide encoded by a nucleic acid molecule that comprises a nucleotide sequence at least 92% identical to SEQ ID NO:1 or 3, wherein the ABCB9 transporter polypeptide retains an ABCB9 transporter activity.

7. A method for identifying a compound that binds to an ABCB9 transporter polypeptide comprising:

(a) contacting a test compound with an ABCB9 transporter polypeptide according to claim 1 or a cell expressing the ABCB9 transporter polypeptide under conditions that permit interaction between the ABCB9 transporter polypeptide and the test compound; and

(b) determining the ability of the test compound to bind to the ABCB9 transporter polypeptide.

8. The method of claim 7, wherein the binding of the test compound to the ABCB9 transporter polypeptide is detected by a method selected from the group consisting of

(a) detection of binding by direct detection of binding of the test compound to the ABCB9 transporter polypeptide;

(b) detection of binding using a competition binding assay; and

(c) detection of binding using an assay for ABCB9 transporter activity.

9. The method according to claim 7 wherein the compound is an antibody that binds specifically to the ABCB9 transporter polypeptide.

10. The method according to claim 7 wherein the compound is selected from the group consisting of a small molecule, a polypeptide, a peptide, and a peptidomimetic.

11. A method for modulating the activity of an ABCB9 transporter polypeptide, comprising contacting an ABCB9 transporter polypeptide according to claim 1 or a cell expressing the ABCB9 transporter polypeptide with a compound identified according to the method of claim 7 that binds to the ABCB9 transporter polypeptide, thereby modulating the activity of the ABCB9 transporter polypeptide.

12. A method for identifying a compound that modulates an activity of an ABCB9 transporter polypeptide comprising:

a) contacting a test compound with an ABCB9 transporter polypeptide according to claim 1 or a cell that expresses the ABCB9 transporter polypeptide under conditions that permit interaction between the ABCB9 transporter polypeptide and the test compound; and

b) determining the level of the activity of the ABCB9 transporter polypeptide in the presence of the test compound relative to a level of the activity of the ABCB9 transporter polypeptide in the absence of the test compound, and thereby identifying a compound that modulates the activity of the ABCB9 transporter polypeptide.

13. The method according to any one of claims 7, 11, and 12 wherein the cell is a brain cell.

14. The method according to any one of claims 7, 11, and 12 wherein the ABCB9 transporter polypeptide is a membrane-bound form of the isolated ABCB9 transporter polypeptide.

15. The method according to either claim 11 or claim 12 wherein the activity of the ABCB9 transporter is the ability to transport a substrate across a membrane.

16. The method according to claim 15 wherein the substrate is β -amyloid.

17. The method according to either claim 11 or claim 12 wherein the activity is the ability to act as an ATP dependent pump.

18. The method according to either claim 11 or claim 12 wherein the activity is the ability to bind ATP.

19. The method according to claim 15 wherein the ability to transport a substrate is the ability to catalyze ATP-dependent transport of the substrate.

20. The method according to either claim 11 or claim 12 wherein the activity is decreased.

21. A method for identifying a compound that modulates the ability of an ABCB9 transporter polypeptide to bind to a substrate comprising:

(a) contacting a test compound with an ABCB9 transporter polypeptide according to claim 1 or a cell that expresses the ABCB9 transporter polypeptide, and an ABCB9 transporter polypeptide substrate under conditions that permit interaction between the substrate and the ABCB9 transporter polypeptide; and

(b) determining the level of binding of the ABCB9 transporter polypeptide to the substrate of the ABCB9 transporter polypeptide in the presence of the test compound relative to the level of binding of the ABCB9 transporter polypeptide to the substrate in the absence of the test compound, and thereby identifying a compound that modulates the ability of an ABCB9 transporter polypeptide to bind to a substrate.

22. The method of claim 21 wherein the ABCB9 transporter polypeptide is a membrane-bound form of an isolated ABCB9 polypeptide.

23. The method of claim 21 wherein the substrate is β -amyloid.

24. A method for identifying a compound that modulates expression of an ABCB9 transporter polypeptide comprising:

(a) contacting a test compound with a cell that expresses an ABCB9 transporter polypeptide according to claim 1; and

(b) determining the level of expression of an mRNA that encodes the ABCB9 transporter polypeptide in the presence of the test compound relative to the level of expression of an mRNA that encodes the ABCB9 transporter polypeptide in the absence of the test compound, and therefrom identifying a compound that modulates expression of the ABCB9 transporter polypeptide.

25. A method for identifying a compound that modulates expression of an ABCB9 transporter polypeptide comprising:

(a) contacting a test compound with a cell that expresses an ABCB9 transporter polypeptide according to claim 1; and

(b) determining the level of the ABCB9 transporter polypeptide expressed in the presence of the test compound relative to the level of the ABCB9 transporter polypeptide expressed in the absence of the test compound, and thereby identifying a compound that modulates expression of the ABCB9 transporter polypeptide.

26. The method according to claim 25 wherein the test compound is an antisense nucleic acid molecule comprising a nucleotide sequence that is complementary to the sequence set forth in SEQ ID NO: 1 or 3.

27. The method according to any one of claims 21, 24, and 25 wherein the cell is a brain cell.